

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L23/31

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 154 473 A (SANYO ELECTRIC CO) 14 November 2001 (2001-11-14) the whole document -----	1,3,7,8
Y	EP 1 187 205 A (SANYO ELECTRIC CO) 13 March 2002 (2002-03-13) the whole document -----	1,3,7,8
A	EP 1 182 703 A (CASIO COMP CO LTD ; INTEGRATED ELECTRONICS & PACKA (JP)) 27 February 2002 (2002-02-27) the whole document -----	7
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) & JP 11 163024 A (SUMITOMO METAL MINING CO LTD), 18 June 1999 (1999-06-18) the whole document -/-	1,7

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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- °T° later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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- °Y° document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- °&° document member of the same patent family

Date of the actual completion of the International search

22 July 2003

Date of mailing of the International search report

29/07/2003

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INTERNATIONAL SEARCH REPORT

Intern Application No
PCT/IB 03/01302

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>-& JP 11 163024 A (SUMITOMO METAL MINING CO LTD) 18 June 1999 (1999-06-18) -----</p> <p>EP 1 143 509 A (SANYO ELECTRIC CO) 10 October 2001 (2001-10-10) the whole document -----</p>	1,7

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/IB 03/01302

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
EP 1154473	A 14-11-2001	JP 2001320011 A			16-11-2001
		CN 1323064 A			21-11-2001
		EP 1154473 A2			14-11-2001
EP 1187205	A 13-03-2002	JP 2002083903 A			22-03-2002
		CN 1341963 A			27-03-2002
		EP 1187205 A2			13-03-2002
		US 2002048828 A1			25-04-2002
EP 1182703	A 27-02-2002	JP 2002057291 A			22-02-2002
		JP 2002057292 A			22-02-2002
		CN 1338779 A			06-03-2002
		EP 1182703 A2			27-02-2002
		US 2002017730 A1			14-02-2002
JP 11163024	A 18-06-1999	NONE			
EP 1143509	A 10-10-2001	JP 2001250883 A			14-09-2001
		JP 2001250884 A			14-09-2001
		CN 1315823 A			03-10-2001
		EP 1143509 A2			10-10-2001
		US 6562660 B1			13-05-2003